

N. & C. Hunt,

Door Latch.

N^o 1,268

Patented July 29, 1839.

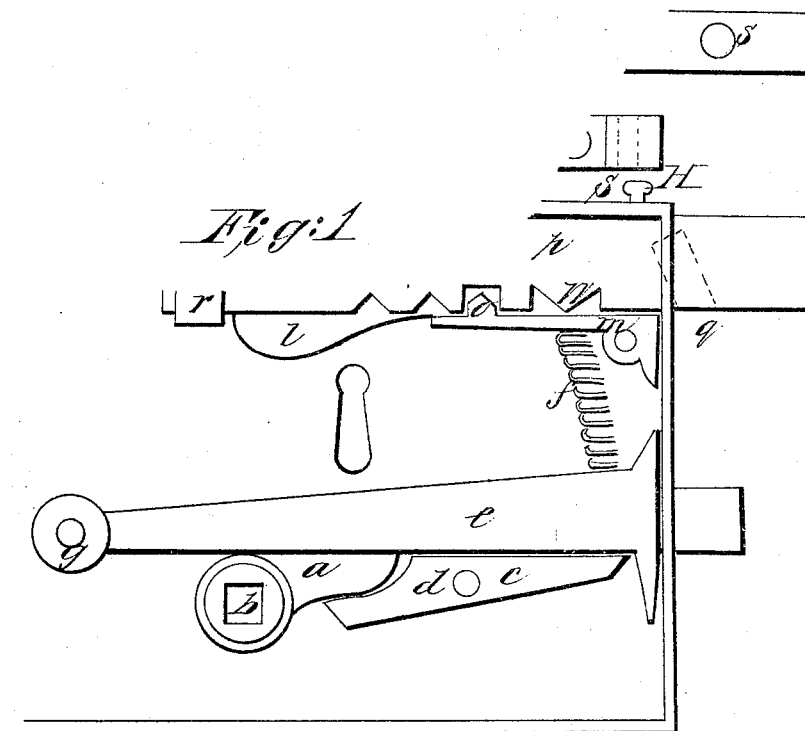


Fig: 2

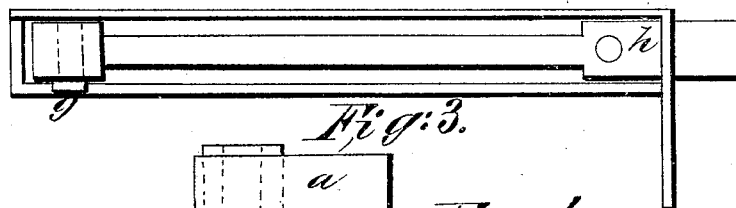


Fig: 3.



Fig: 4



UNITED STATES PATENT OFFICE.

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DOOR LOCK AND LATCH.

Specification of Letters Patent No. 1,268, dated July 29, 1839.

To all whom it may concern:

Be it known that we, NATHAN HUNT and CALEB HUNT, of the township of Cleveland and county of Cuyahoga and State of Ohio, have invented a new and useful Method of Applying Levers and Spiral Springs to Locks and Latches for Doors; and we hereby declare that the following is a full and exact description thereof.

The nature of our invention consists, firstly, in applying to the bolt or mandrel to which the knobs are attached a lever (see drawing, Figure 1, *a*) one inch long so that it will come in contact with the middle of the latch in operating to raise it, and, secondly, in placing another lever (see drawing, Fig. 1, *c, d*) under the latch 2 inches long lying parallel with the latch and so adjusted that the posterior end may be under the forward end of the said lever (*a*) attached to the bolt or mandrel aforesaid, the forward end of the said lever (*c, d*) extending nearly to the forward end of the latch. Said lever (*c, d*) moves on a pin or fulcrum in its center. Thirdly, we place a bolt or stud of wire (*f*) (for a five inch lock) about $\frac{1}{4}$ of an inch in diameter firmly fixed at one end thereof in the upper edge of the latch (*e*) about one fourth of an inch from the face plate of the lock. This stud or bolt (*f*) extends upward in a curved line about $1\frac{1}{4}$ inch. Around this stud of wire we place a spiral spring. The said stud (*f*) passes through another lever (*m*) placed directly under the bolt (*p*) used in locking the door. The last mentioned lever (*m*) is placed directly under the bolt (*p*) used in locking the door. One end of its is secured by a fulcrum pin placed about one inch above the latch and $\frac{1}{4}$ of an inch from the face plate of the lock. This lever (*m*) we make $1\frac{3}{4}$ inches long. On the top of the lever about $1\frac{1}{4}$ inch from the fulcrum pin of the same we make a projection or pin (*o*) to fit a notch in the underside of the bolt (*p*) which locks the door. Through the said lever (*m*) about $\frac{1}{2}$ an inch from the fulcrum pin thereof, we make a hole through which the wire stud (*f*) moves on raising the latch. On the under side of the lever (*m*) one extremity the spiral spring rests, which secures the said lever (*m*) in its position unless moved as hereinafter described,

the other extremity of the said spring resting on the upper edge of the latch as before specified. We next make the bolt (*p*, Fig. 1 and Fig. 6) which is five inches long, and $\frac{7}{8}$ of an inch wide, and $\frac{1}{2}$ of an inch thick. We bore a hole (*s*, Fig. 6) one fourth of an inch in diameter through the bolt from edge to edge, $\frac{3}{4}$ of an inch from the center end of the bolt. Through this hole the stud (*f*, Fig. 1) moves on raising the latch. We then cut away half the thickness of the bolt, commencing about $1\frac{1}{4}$ inches from the outer end, taking out a piece about $2\frac{3}{4}$ inches long, leaving the full thickness of the bolt at either end. The object in cutting away the bolt as above is to make room for the motion of the lever (*l*, Fig. 1, and Fig. 7). On the lower edge of the bolt are two notches, one, square, about $2\frac{3}{8}$ inches from the outer ends of the bolt, and one about half an inch forward of the other, formed by the double inclined plane (*w*, Fig. 1). Over the posterior end of the bolt we put a staple (*r*) to keep it steady. We then make a lever (*C*) $1\frac{3}{4}$ inch long, $\frac{1}{2}$ an inch wide and $\frac{1}{4}$ an inch thick which we attach to the lock plate under the bolt (*p*) and between the said bolt and lock plate by a fulcrum pin (Figs. 7, 4). The fulcrum pin is placed about 2 inches from the face plate of the lock, and about $\frac{1}{2}$ an inch from the upper edge of the lock plate. The said lever (*C*, Fig. 1) is so adjusted that its anterior end rests on the posterior end of lever (*m*, Fig. 1) and that the posterior ends of lever (*C*) is near the keyhole, so that the key in turning raises the posterior end of lever (*C*) and presses down the posterior end of lever (*m*), thus relieving the square notch in bolt (*p*) from the pin or projection (*o*) on lever (*m*). The use of the spiral spring is to keep the latch down and the lever (*m*) up. When the door is unlocked the bolt or stud (*f*) passes freely through the hole before mentioned in lever (*m*) and through the hole (*s*) in bolt (*p*). If the door is locked, or the bolt (*p*) moved, the hole (*s*) is no longer in opposition with the bolt or stud (*f*), hence the latch is fastened down, and hence by moving the bolt (*p*) with the hand by means of the pin (*w*) as far as the notch formed by the double inclined plane will allow, the door is fastened

but can be opened upon the inside. Now with the key, raise the lever (C) and thereby press down the lever (*m*) and the bolt is thrown farther forward, so that the square notch in bolt (*p*) receives the projection (*o*) on levers (*m*), when the door is securely fastened. Now one turn of the key throws the bolt (*p*) back through the space of the square notch and the next turn through the space of the notch formed by the double inclined plane (*w*), when the door is again unlocked and the latch operates freely again.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

We make the body of the lock in any of the known forms and of iron or wood. We use the common kind of knobs, such as are attached to other locks, and a tumbler through which the bolt on which the knobs are fastened passes. The tumbler is made round and $\frac{3}{4}$ of an inch in diameter and $\frac{1}{2}$ an inch thick with a hole through it $\frac{3}{8}$ of an inch square. The bolt also to which the knobs are fastened is made square for the purpose of moving the tumbler. We make an arm, or projection on one side of the tumbler which projects $1\frac{1}{4}$ inch from the center of the square hole to the end of the arm or lever, which forms the tumbler, the upper line of the arm or lever being made straight, so as to fit to the underside of the latch. The under side may be straight or curved.

a, Fig. 1, shows the side of the tumbler, and *a*, Fig. 3, the edge.

(*b*) shows the square hole for the bolt.

The ends of the tumbler are made round and fitted into holes made through both plates of the lock when made of iron and when made of wood we make the bolt on which the knobs are fastened $\frac{5}{8}$ of an inch in diameter and make a small mortise through it in which we place the lever for raising the latch. In wood or iron locks we make another lever $2\frac{1}{4}$ inches long, $\frac{3}{8}$ of an inch thick and $\frac{1}{2}$ an inch wide in the middle, where we make a hole and place the lever on a pin or pivot which is fastened to the side plate of the lock, leaving the lever to work freely on its center, one end of which extends back and under the lever of the tumbler and the other end extending along near the face or end plate of the lock and under the latch, so that when the lever which is attached to the tumbler or bolt operates on the said lever it will raise the latch.

C, Fig. 1, shows the side of the lever; (*d*), the pin or pivot (Fig. 3) the edge.

We make the latch for a 5-inch lock $5\frac{3}{8}$ inches long, $\frac{3}{8}$ of an inch square at one end, where we make a hole, and confine the end by a pin or pivot, leaving the latch to work freely on it. The other end we make $\frac{1}{2}$ an

inch thick and $\frac{3}{4}$ an inch wide. We cut a hole through the front plate of the lock to allow the latch to play freely up and down in and leave a projection on the upper and lower edge of the latch, so as to cover the hole cut through the plate when the latch is down or up. We make a hole in the upper edge of the latch 1 inch from the outer end, where we place a wire or bolt $\frac{1}{4}$ of an inch in diameter and screw or rivet it first to the latch, which bolt passes through the lever (*m*) under the bolt (*p*).

e, Fig. 1, shows the side of the latch; (*f*), the bolt spring and (*g*) the pin or pivot of the latch.

Fig. 2 shows the edge of the latch and *h*, Fig. 2, the hole for the bolt which keeps the spring in its place. We then make another lever $1\frac{3}{4}$ inches long $\frac{3}{8}$ of an inch wide and square at one end and $\frac{1}{2}$ of an inch thick at the other end. We make a hole through one end and confine it to a pin or pivot and place it $1\frac{1}{8}$ inches above the latch, one end of it nearly touching the end plate of the lock and the other end extending back and under the bolt, which slides and is moved by the key and which lever is kept up to the bolt by means of the vertical spring. On the upper edge of this lever is left a pin or projection $\frac{1}{4}$ of an inch square and again cut in the under side of the slide bolt in which it is placed when the bolt is thrust out by the key or when the door is locked. For the purpose of securing the bolt in its place, the notch is commenced $2\frac{3}{8}$ inches from the end of the bolt. We make the slide bolt five inches long, $\frac{1}{2}$ inch thick and $\frac{3}{4}$ of an inch wide. We commence to finish the bolt by first boring a hole $\frac{1}{4}$ of an inch in diameter, $\frac{5}{8}$ of an inch from the outer end and in the under edge of it, which we make $\frac{1}{2}$ an inch deep, or more, so that the wire or bolt around which the spring is placed may pass up freely into it when the door is unlocked. We then commence an inch and a half from the end and cut another notch in the underside or edge of the same bolt by cutting or filing with a three-cornered file a quarter of an inch, making one side of the notch at right angles with the edge of the bolt. We then measure the distance that one turn of the key will slide the bolt and file another notch in the same manner, leaving the edge of the notch at right angles with the edge of the bolt, making a double inclined plane to pass over the projection or pinion lever (*m*). We then cut away half the thickness of the slide bolt, commencing $1\frac{1}{2}$ inches from the end and cut out a piece $2\frac{3}{4}$ inches and $\frac{1}{4}$ of an inch thick, which leaves a space for another lever, which is shown at Fig. 7 and at *i*, Fig. 6, also its position (*e*, Fig. 1).

m, Fig. 1, shows the lever under the slide bolt; *n* the pivot; *o*, the pin; *p*, Fig. 1, the

slide bolt; *g*, the hole for the bolt or stud to pass into; *r*, a staple to keep the end of the slide bolt in its place.

Fig. 5 shows the side and Fig. 6 shows the edge of the slide bolt.

s, Fig. 6, shows hole for the bolt or wire of the spiral spring.

The lever, Fig. 7, is made to work on a pin or pivot.

4, Fig. 7, shows the hole in the lever.

C, Fig. 1, shows the position of the lever when in operation. This lever being operated on by the key will operate on the lever *m* and relieve the slide both from the pin or projection on said lever *m*, by which means the key will move the slide bolt. We put a pin or knob in the upper edge of the slide

bolt for the purpose of moving the bolt by hand when on the inside the same distance that one turn of the key will move it. 20

Letter *x*, Fig. 1, shows the pin or knob for moving the bolt.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination of the two levers for operating the latch in the manner described, and also the combined use of the bolt and helical spring to secure the latch and to serve as a lock in the manner described. 25

NATHAN HUNT.
CALEB HUNT.

Witnesses:

A. D. SMITH,
H. G. ABBEY.